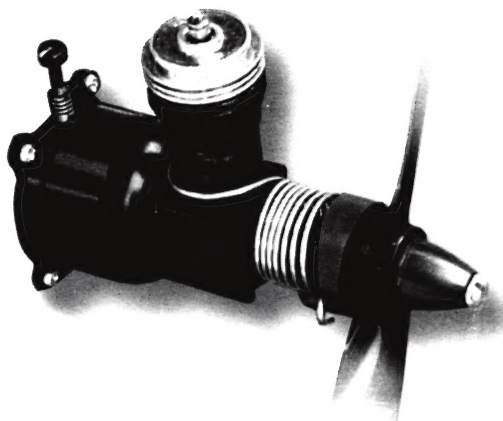




## COX® ENGINE OPERATION & TROUBLESHOOTING GUIDE



- **Babe Bee™ .049** - General Purpose Engine.
- **Black Widow™ .049** - More powerful engine.
- **Texaco .049** - Extended run engine.
- **Killer Bee™ .049** - Powerful non-tank engine.
- **Tee Dee® .049** - Powerful front intake, non-tank engine.
- **Pee Wee™ .020** - For small aircraft.
- **Tee Dee® .09** - Large, front intake, non-tank engine.

### OPERATING GUIDELINES - ALL ENGINES

- We recommend using only COX Super Power Fuel® in all COX engines. If not available, fuel containing at least 20% oil (consisting of no less than 50% castor oil) is recommended. Use of fuel with less than 10% castor oil will void warranty.
- A 1.5 volt starting battery and glow head clip is required to start your engine. We recommend the use of the engine starting kits listed below. CAUTION: Using batteries greater than 1.5 volts will damage the glow head and void all warranties.
- When adjusting engine speed, allow for a short delay between movement of the needle valve and a change in engine speed.
- The fuel pick-up tube inside each tank is positioned (at the factory) for control line flying. For free flight flying, remove the tank from the engine and reposition the fuel pick-up tube to bottom of the tank.

NOTE: Engine starting kits containing all the items required - including fuel - to operate COX engines are available separately. #405 for the Basic Kit, #885 for the Deluxe Kit with tool box.

### GLOW HEADS:

The tiny coil of wire inside the glow head is the 'element'. When a starting battery is connected to the glow head, the 'element' begins to 'glow' bright orange. This 'element' will continue to glow in a running engine from the heat of the burning fuel. Due to the extreme environment in which the glow head element operates, it is prone to burn out periodically and require replacement. To replace a burned out glow head, 2 COX engine wrenches (included in the Starting Kit or sold separately) are required. Place one wrench on the upper cylinder where two flat edges have been machined. Hold in place while using the other wrench to remove the glow head. With the glow head removed test the glow head element by connecting the starter battery to it and see if the element glows bright orange. CAUTION: Element is Hot - Do Not Touch! If there is no glow visible, replace the glow head.

### ENGINE CARE:

Keep your engine clean. After running, wipe any exhausted fuel, dirt or debris from the engine. Check the glow head for tightness and the propeller for any damage. If needed, clean the engines with rubbing alcohol. Store a cleaned engine, lubricated with a light oil, in a Zip Lock bag.



**COURTESY LINE  
TOLL FREE  
(800)  
451-0339**

AT YOUR SERVICE FOR  
PERFORMANCE TIPS AND PARTS

### WARNING

USE OF THE FOLLOWING EQUIPMENT CAN DAMAGE  
YOUR ENGINE AND WILL VOID YOUR WARRANTY!  
ELECTRICAL STARTERS  
DIESEL CONVERSION KITS  
SHAVED OR EXTREMELY HIGH COMPRESSION HEADS

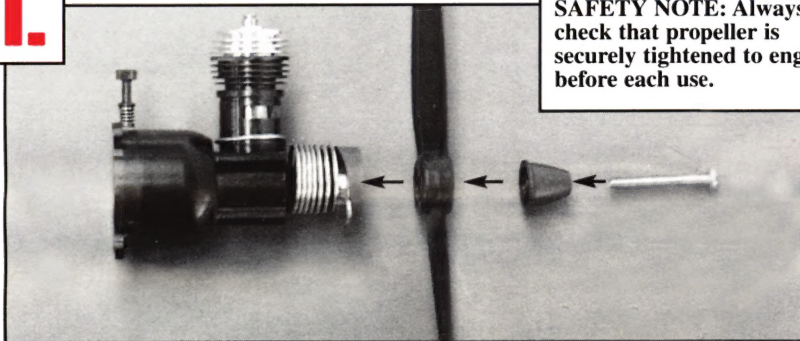


## STARTING AND BREAK-IN PROCEDURES - ALL ENGINES:

Before flying with any of these engines, a break-in period is recommended. Break-in allows the internal parts of the engine to properly seat for optimum performance. Break-in can be done with the engine on or off the plane. Break-in is complete after 3 full tanks of fuel are used.

NOTE: The Tee Dee® .049 and Tee Dee® .09 do not have a Snap Starter® System. Follow the starting procedures as outlined and rapidly hand flip the propeller counterclockwise using a starting stick to start.

**1.**



**SAFETY NOTE:** Always check that propeller is securely tightened to engine before each use.

1. Attach the propeller to the engine and tighten the propeller screw securely.

**2.**



2. Securely mount the engine to your plane or an engine-starting stand.

**CAUTION:** Never hold the engine in your hand or in a vice while running.

**3.**



3. Close the needle valve (turn clockwise) till it stops. DO NOT over tighten the needle valve.

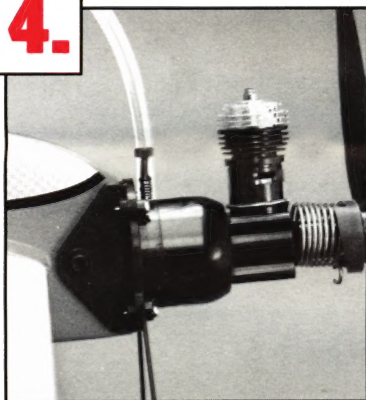


After closing, open the needle valve (turn counterclockwise) 3 turns full turns. Use the arrow point on the needle valve as a guide.



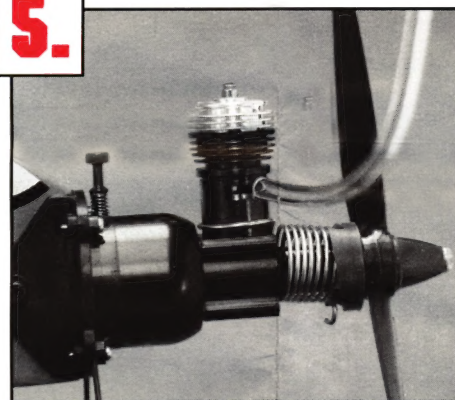
**Arrow Point**

**4.**



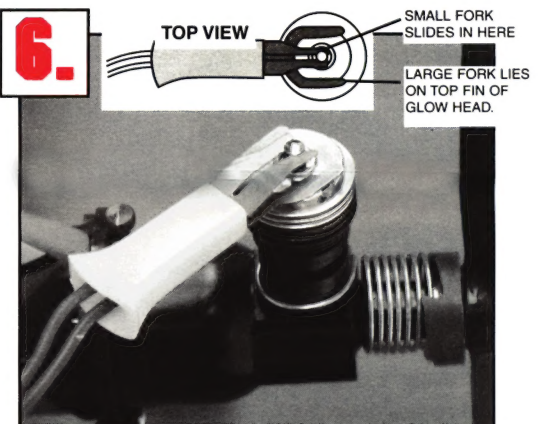
4. Fill the fuel tank. Fuel will flow from overflow near the needle valve when the tank is full.

**5.**



5. Prime engine by squirting several drops of fuel into the exhaust port.

**6.**

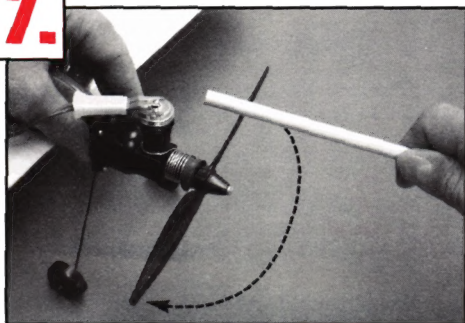


6. Connect glow head clip to glow head. Bottom clip should rest on top fin of the glow head with the top clip snapped around the glow head button. See Top View Illustration.

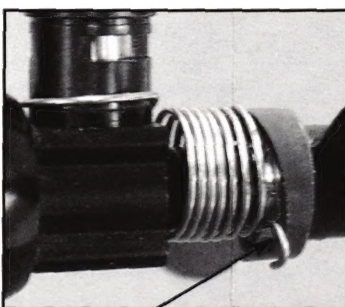
NOTE: The Tee Dee® .049, Killer Bee™ .049 and Tee Dee® .09 require fuel tanks. Fuel tanks are sold separately at your local hobby shop.



**7.**

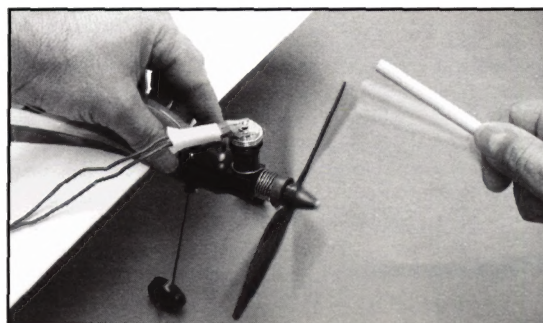


7. Hold on to the model behind the engine. Using a starting stick (included in the COX Starting Kit) wind the propeller backwards (Clockwise) to catch the starting spring hook onto the notch in the Snap Starter® cam. Continue to wind the propeller clockwise 1 complete turn.



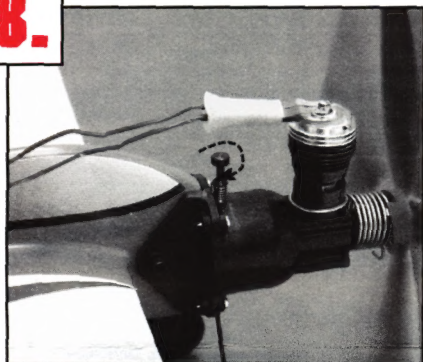
#### Spring Hook and Cam Starter Connection

At the same time, slide the starting stick off the end and out of the way of the propeller. As the propeller is released the spring starter will spin the propeller counterclockwise to start the engine. Several attempts may be required before the engine starts.

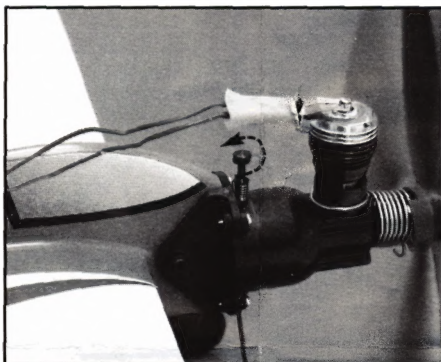


**NOTE:** If after a few attempts, the engine attempts to start but does not, open (turn counterclockwise) the needle valve 1/4 turn and reprime the engine. Try starting again. Repeat if necessary or refer to the engine troubleshooting section.

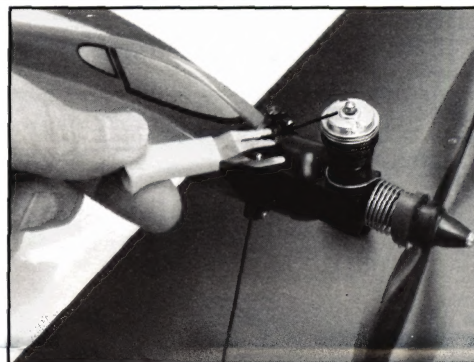
**8.**



8. When the engine starts, be quick to begin slowly closing the needle valve (turn clockwise) until the engine is running at top speed. At top speed, the engine should produce a shrill whine.



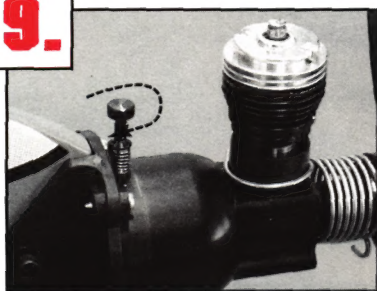
With the engine at top speed, open the needle valve (turn counterclockwise) approximately 1/2 turn until engine runs with a "crackling" or "bubbling" sound.



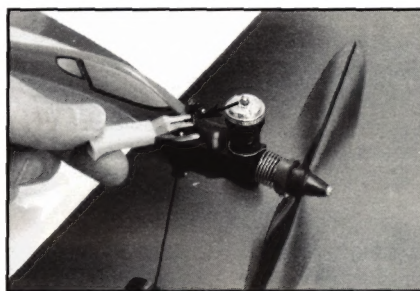
Remove the glow head clip and let the engine run until the fuel tank runs dry. Refuel, restart and repeat procedure until the engine has used 3 tanks of fuel.

**NOTE:** If the engine quits right after the glow clip is removed, close the needle valve 1/4 turn and restart engine.

**9.**



9. After 'break-in' restart the engine and adjust the needle valve (turn clockwise) until the engine is running at top speed again.



Remove the glow head clip and let the engine run the fuel out. If the engine holds the top RPM without major changes to the needle valve, it is ready for use in flight.

Use only Cox model fuel-NEVER USE GASOLINE! Gasoline can explode and burn, causing serious injury to YOU AND OTHERS.

Cox model fuel works only because it is FLAMMABLE - it burns with an almost invisible flame. It can burn you if not used with common sense-be careful and follow these rules:

- NEVER FUEL OR PRIME WITH BATTERY CONNECTED TO ENGINE
- WIPE EXCESS FUEL FROM MODEL WITH CLOTH AFTER EACH FUELING OR PRIMING
- DO NOT OPERATE ENGINE INDOORS
- DO NOT SMOKE WHEN FUELING OR OPERATING ENGINE



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## TROUBLESHOOTING GUIDE:

### A. ENGINE WILL NOT START.

#### Look For:

- Poor battery connection.....
- Weak or dead battery .....
- Batteries installed incorrectly.....
- Burned out glow head .....
- Glow head loose .....
- Engine wasn't primed.....
- No fuel in tank.....
- Needle valve setting is wrong .....

#### What to do:

- Repair connections
- Replace batteries.
- Check & reinstall
- Replace glow head
- Tighten glow head
- Prime engine again
- Fill tank with fuel
- Close needle valve and reopen 3 full turns.
- Prime engine and restart engine.
- Close needle, continue to flip the propeller until the engine starts with a "Brp" sound. Then restart following steps 3-9.

### B. ENGINE STARTS, HAS A SHORT BURST OF HIGH SPEED THEN QUILTS.

#### Look for:

- Engine not getting enough fuel (It's running 'lean') .....
- Fuel tank empty .....

#### What to do:

- Open (turn counterclockwise) needle valve 1/2 turn, prime the engine and restart.
- Fill tank with fuel.

### C. ENGINE STARTS, RUNS A SHORT TIME MAKING A 'SPUTTERING' SOUND THEN QUILTS.

#### Look For:

- Too much fuel in engine (It's running 'rich'). .....

#### What to do:

- Close (turn clockwise) the needle valve 1/2 turn. Do not prime the engine and restart.

### D. ENGINE DOES NOT RUN SMOOTHLY.

#### Look For:

- Improperly set needle valve. ....

#### What to do:

- While the engine is running, slowly rotate the needle clockwise (to the right) until the engine runs smoothly.

### E. ENGINE DOES NOT RUN SMOOTHLY AND BUBBLES APPEAR UNDER GLOW HEAD.

#### Look For:

- Loose glow head.....
- Missing glow head gasket. ....

#### What to do:

- Tighten glow head, start engine and reset needle valve.
- Replace gasket.

## FIRE AND FUEL SAFETY



**DANGER - POISON**  
VAPOR HARMFUL - FLAMMABLE - EYE IRRITANT -  
MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED



Contains Methanol and Nitro Methane. Cannot be made non-poisonous. Avoid contact with eyes. Use only in a well-ventilated area. Keep away from heat and open flame. Do not store in open or unlabeled container. Do not throw empty bottle in fire.

**FIRST AID:** In case of contact with eyes flush eyes thoroughly for 15 minutes with warm water. If swallowed, induce vomiting. Call physician immediately.

**KEEP FROM SMALL CHILDREN - USE WITH ADULT SUPERVISION**

1. **NEVER USE GASOLINE!** Use only COX model fuel. Gasoline can explode and burn, causing injury to YOU AND OTHERS and will not work with your COX model.
2. COX model fuel works only because it is **FLAMMABLE** - it burns with an almost invisible flame. It can burn you if not used with common sense - be careful and follow these rules.

☐ WIPE EXCESS FUEL FROM MODEL WITH CLOTH AFTER FUELING OR PRIMING.

☐ KEEP FUEL AWAY FROM OPEN FLAME.

☐ DO NOT OPERATE ENGINE INDOORS.

☐ DO NOT SMOKE WHEN FUELING OR OPERATING MODEL.

☐ NEVER USE COX FUEL BOTTLE TO STORE OTHER CHEMICALS OR FUELS.

☐ DO NOT THROW EMPTY BOTTLE IN FIRE.

3. **IF AN ACCIDENTAL FIRE DOES OCCUR** - Flame can be put out with a fire extinguisher or it can be smothered by covering with a heavy, clean cloth. Do not use a cloth with fuel on it. If fire continues, Get AWAY!

4. **FUEL ONLY WITH SAFETY SPOUT IN BOTTLE.** Never use a syringe or other device. Never remove safety spout from bottle.

5. **FUEL IS AN EYE IRRITANT.** Fuel only in a well ventilated outdoor area. Keep face away from model when fueling.

6. **FUEL IS POISON AND CAN CAUSE DEATH OR BLINDNESS. NEVER DRINK IT.** If swallowed, induce vomiting and call a physician immediately.

7. **NEVER PLAY WITH FUEL. USE IT ONLY FOR YOUR MODEL'S ENGINE.**

8. **NEVER LEAVE CAP OFF FUEL BOTTLE WHEN NOT IN USE.**

9. **DISPOSE OF EMPTY BOTTLE IN ACCORDANCE WITH LOCAL REGULATIONS AND LAWS.**

10. **NEVER STORE YOUR MODEL WITH THE STARTING BATTERY AND GLOW CLIP ATTACHED TO THE GLOW HEAD.**

## PROPELLER SAFETY

1. DO NOT ALTER, MODIFY OR CUSTOMIZE YOUR PROPELLER. DISCARD WORN OR DAMAGED PROPELLERS.

2. Powered spinning propellers can inflict injury to you and others if handled carelessly. A propeller, which has been damaged with nicks, chips or cracks, or a propeller which has been altered in any way can break apart during operation of the engine and cause serious injury to you and others.

3. KEEP YOUR FACE, FINGERS, CLOTHING AND ALL OTHER OBJECTS AWAY FROM SPINNING PROPELLER.

4. INSPECT PROPELLER BEFORE EACH USE.

5. USE ONLY PROPELLERS APPROVED FOR USE WITH YOUR ENGINE.

6. DISCARD AND REPLACE NICKED, CHIPPED, CRACKED OR ALTERED PROPELLERS.

7. Each propeller sold by COX is carefully engineered and tested for maximum reliable performance for only the plane and engine for which it was designed. If a propeller is altered or damaged in the slightest degree, its aerodynamics and balance are jeopardized and you have created a serious risk of the propeller flying apart and causing injury to you and others.

8. PLAY IT SAFE - replace propeller if you suspect any damage.

9. Check and tighten the propeller before each run. A loose propeller will cause loss of power and poor flight performance, as well as possible injury to you.

10. NEVER WIND THE SNAP STARTER® MORE THAN ONE TURN AFTER IT ENGAGES.

11. RELEASE THE PROPELLER AND PULL YOUR HAND BACK AWAY FROM THE PROPELLER QUICKLY TO AVOID INJURY.

### FACTORY REPAIR SERVICE

Minor repair, examination or adjustment to all engines is available from the factory. Pricing will vary according to time required to perform service. Call COX Customer Service for an estimate. Parts under warranty will be replaced at no charge except Glow Heads.

### CUSTOMER SERVICE DEPARTMENT

For any questions or service regarding any COX® product please contact our Customer Service Department at 1-800-451-0339. Customer Service hours are from 8:00AM to 4:30PM Mountain time, Monday through Friday, except holidays.

Your COX engine is fully warranted against factory defects for 90 days from the date of purchase. GLOW HEADS are NOT under warranty since they require periodic replacement.